

Page 1 of 14
INFRARED RADIATION-DETECTING DEVICE
Sarath Gunapala et al.
09/825,875
06816-035003

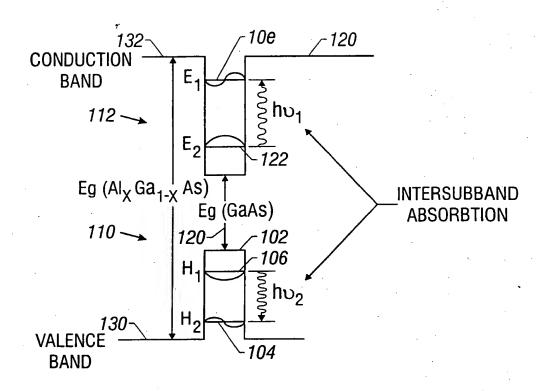


FIG. 1



#### Page 2 of 14 INFRARED RADIATION-DETECTING DEVICE Sarath Gunapala et al. 09/825,875 06816-035003

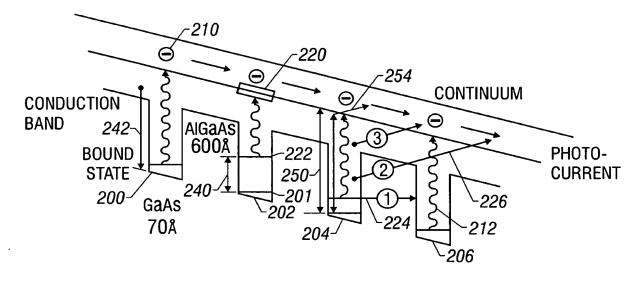


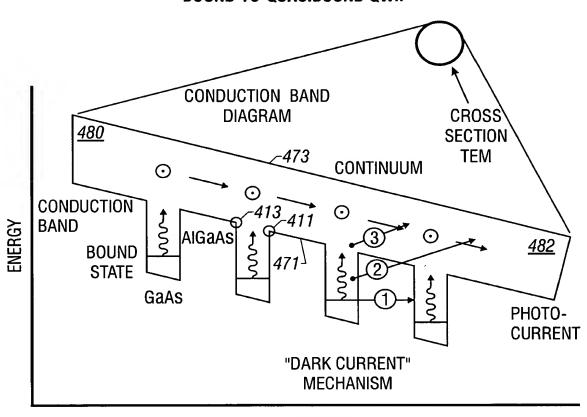
FIG. 2



## Page 3 of 14 INFRARED RADIATION-DETECTING DEVICE Sarath Gunapala et al. 09/825,875 06816-035003

#### 3/14

#### **BOUND-TO-QUASIBOUND QWIP**

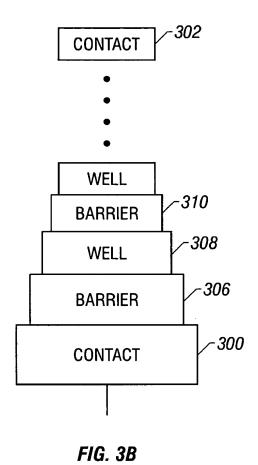


**POSITION** 

FIG. 3A



## Page 4 of 14 INFRARED RADIATION-DETECTING DEVICE Sarath Gunapala et al. 09/825,875 06816-035003





## Page 5 of 14 INFRARED RADIATION-DETECTING DEVICE Sarath Gunapala et al. 09/825,875 06816-035003

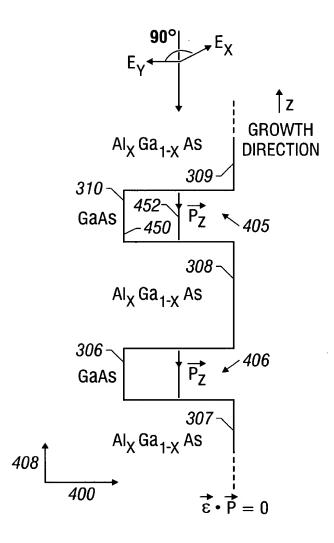


FIG. 4



# Page 6 of 14 INFRARED RADIATION-DETECTING DEVICE Sarath Gunapala et al. 09/825,875 06816-035003

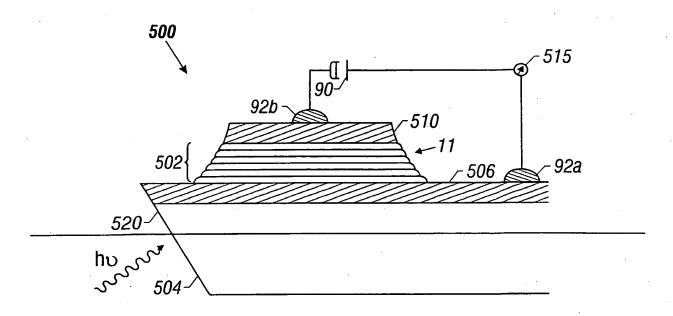


FIG. 5



### Page 7 of 14 . INFRARED RADIATION-DETECTING DEVICE Sarath Gunapala et al. 09/825,875 06816-035003

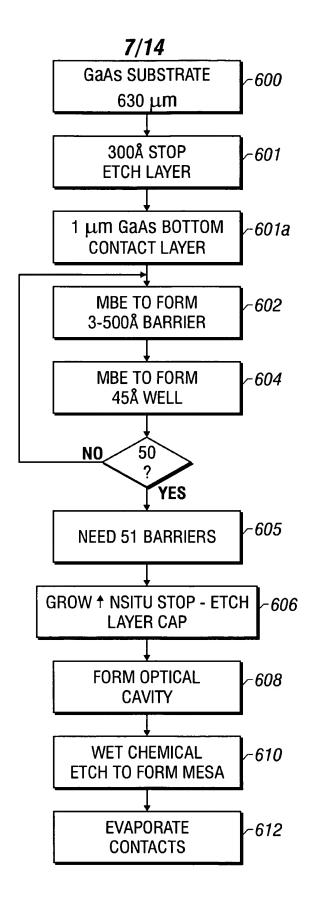


FIG. 6



#### Page 8 of 14 INFRARED RADIATION-DETECTING DEVICE Sarath Gunapala et al. 09/825,875 06816-035003

8/14

Α  $\frac{\lambda'}{A}$  PHASE - SHIFTER 0.6 - 0.7  $\mu$ m GaAs ND = 5 x 1017cm<sup>-3</sup> 712- $300\text{Å AIGaAs} \times 0.2 - 0.3 \text{ STOP} - \text{ETCH ND} = 5 \times 1017 \text{cm}^{-3}$ *708*→  $1000\text{\AA GaAs ND} = 5 \times 1017 \text{cm}^{-3}(\text{Si})$ *706*→  $500\text{\AA X} = 0.2 - 0.3 \text{ AIGaAS UNDOPED}$ **QWIF 50 PERIODS** 40 - 45Å ND = 5 x 1017cm<sup>-3</sup> (Si) GaAs 704- $500\text{\AA} \text{ x} = 0.2 - 0.3 \text{ Algaas undoped}$ 702 701a→  $0.5 \mu m \text{ GaAs ND} = 5 \times 1017 \text{cm}^{-3} \text{ (Si)}$ 701- $300\text{Å AIGAAS} \times 0.2 - 0.3 \text{ STOP} - \text{ETCH ND} = 5 \times 1017 \text{cm}^{-3}$ **DOUBLE SIDED POLISHED** 700-3" SEMI-INSULATING GaAs

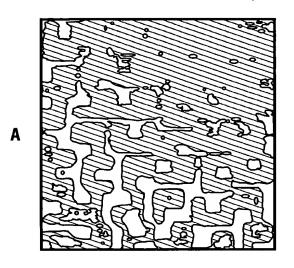
**SUBSTRATE** 

FIG. 7



# Page 9 of 14 INFRARED RADIATION-DETECTING DEVICE Sarath Gunapala et al. 09/825,875 06816-035003

9/14



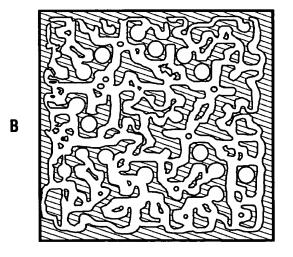


FIG. 7A



# Page 10 of 14 INFRARED RADIATION-DETECTING DEVICE Sarath Gunapala et al. 09/825,875 06816-035003

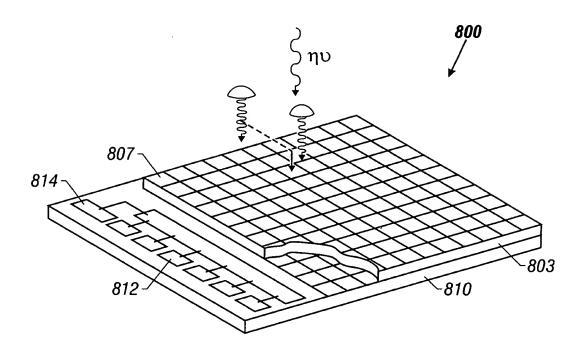


FIG. 8



# Page 11 of 14 INFRARED RADIATION-DETECTING DEVICE Sarath Gunapala et al. 09/825,875 06816-035003

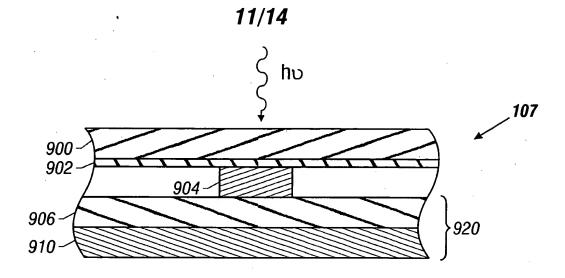


FIG. 9A

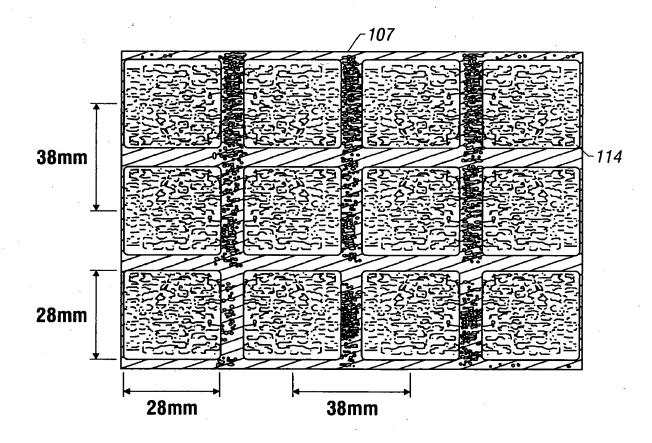


FIG. 9B



Page 12 of 14
INFRARED RADIATION-DETECTING DEVICE
Sarath Gunapala et al.
09/825,875
06816-035003

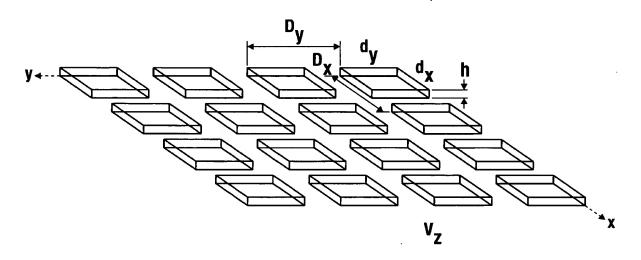


FIG. 10A



# Page 13 of 14 INFRARED RADIATION-DETECTING DEVICE Sarath Gunapala et al. 09/825,875 06816-035003

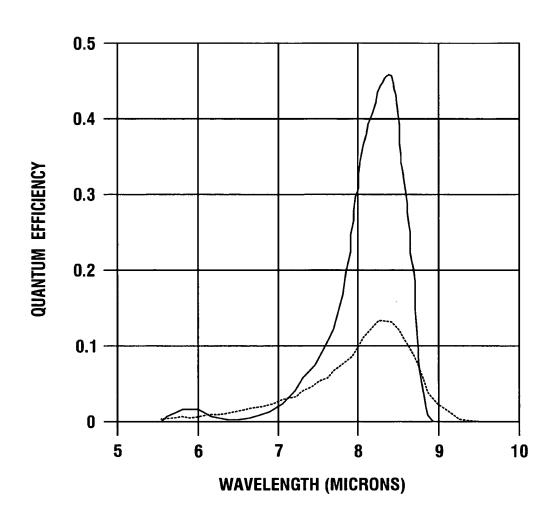


FIG. 10B



### Page 14 of 14 INFRARED RADIATION-DETECTING DEVICE Sarath Gunapala et al. 09/825,875 06816-035003

14/14

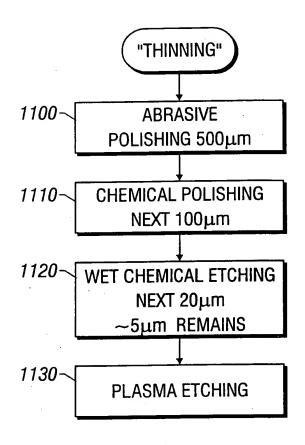


FIG. 11

- 47